

# THE HEALTH IMPACTS OF COARSE PARTICULATE MATTER



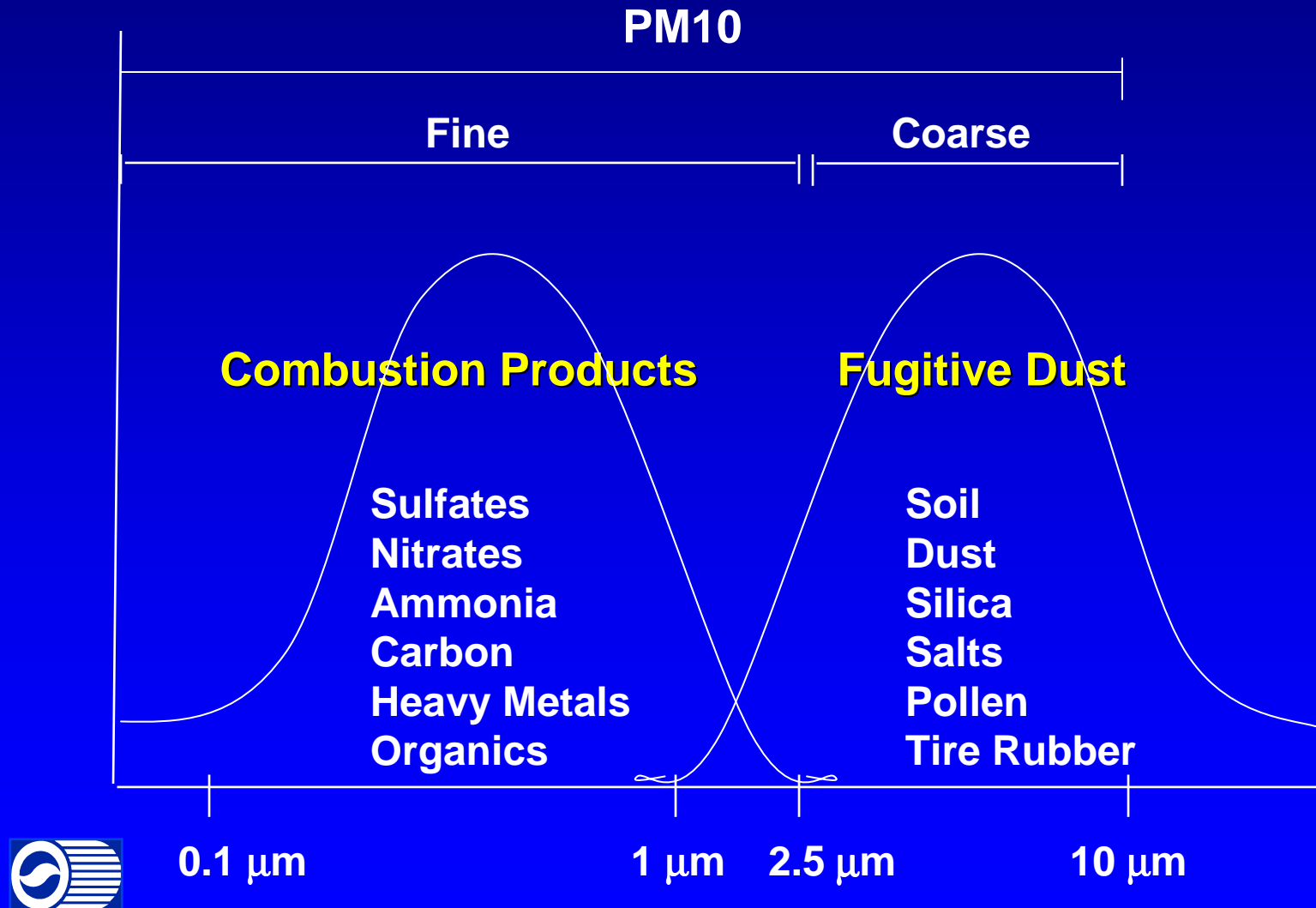
**January 25, 2007**

**Air Resources Board**



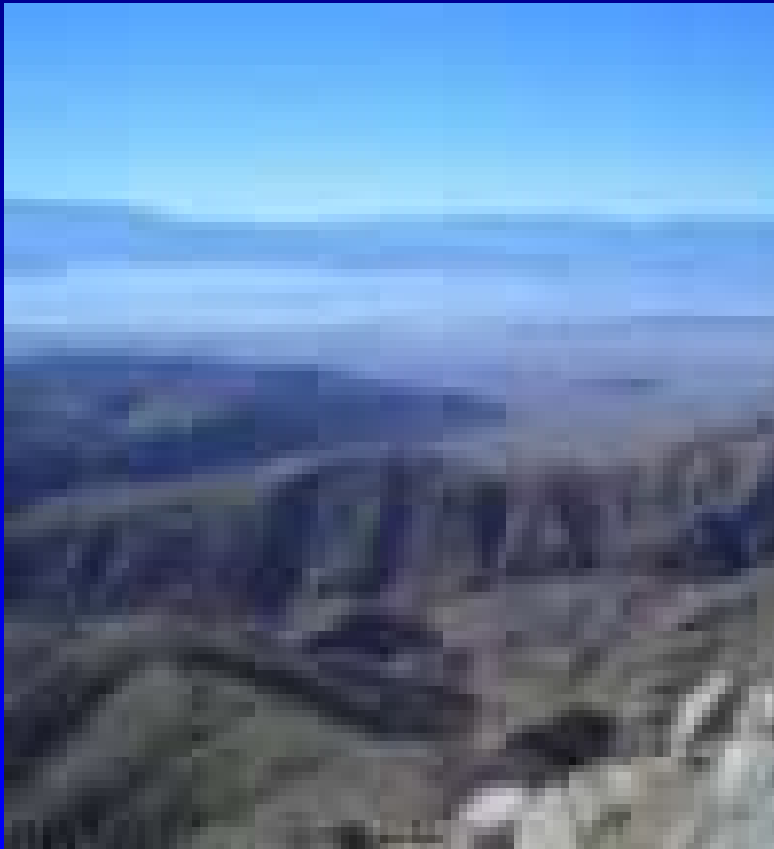
**California Environmental Protection Agency**

# Particulate Matter 10 Air Pollution Size and Composition



# PREVIOUS STUDIES

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- Short-term exposure to coarse PM can increase:
  - Cardiovascular and total deaths (*PM source and composition dependent*)
  - Respiratory and cardiac related hospital admissions
  - Inflammatory effects
- No health effects from long-term exposure to coarse PM found



# THE COACHELLA VALLEY



- 400,000 permanent residents
  - At least 200,000 seasonal residents
- Air pollution dominated by coarse particulate matter

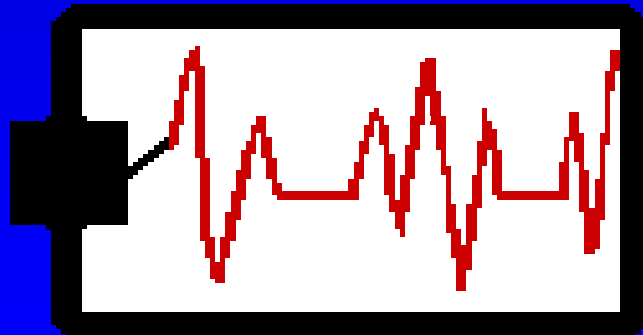


Lipsett MJ, Tsai FC, Roger L, Woo M, & Ostro BD. Coarse Particles and Heart Rate Variability among Older Adults with Coronary Artery Disease in the Coachella Valley, California. *Environmental Health Perspectives*, 114 (8), 1215-1220, Aug. 2006.

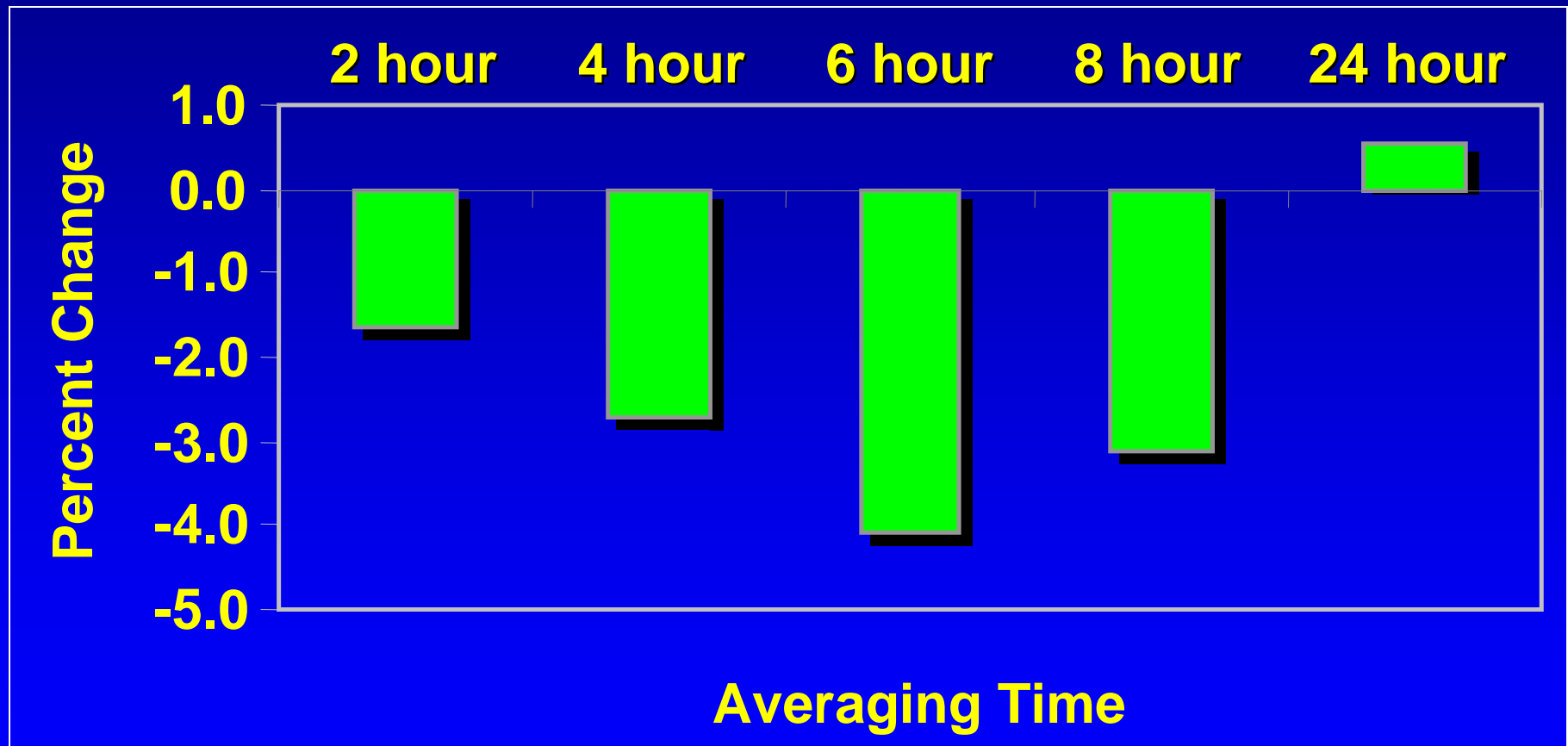
# HEART RATE VARIABILITY (HRV)

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- Measure of the heart's ability to respond to stress
- Decreased HRV linked with increased risk of cardiac disease and death



# Coarse Particle-Associated Decreases in Overall HRV per 10- $\mu\text{g}/\text{m}^3$ increase in PM



# CONCLUSIONS

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- Coarse PM poses health hazard
- Effects found when using short averaging time
- Regulated by PM10 standards
- Further coarse PM research needed

